Appendix J
Application: Topographic Survey for Proposed US Army Reserve Center Belaire, Belmont County, Ohio (Louisville District)

J-1. Purpose and Background

The following plates are taken from a site plan survey performed in July 2003 by an in-house topographic survey crew from the Louisville District. The purpose of the survey was to provide the design team topographic and planimetric information for developing detailed plans for construction of the reserve center. The target scale was 1 inch = 50 ft with a 1 ft contour interval. NSRS control (NAD 83 & NAVD 88) was brought in by static GPS observations. Visible surface utilities were tied in--no underground utility connections were required. Planimetric features and ground shots were observed using a Trimble 5700 RTK unit and a Trimble 5600 total station. The following project summary report was drafted by the Louisville District Survey Section.

Final Report
Belmont County Memorial USARC
Bellaire, OH
July 2003

Survey Section was requested to perform a topo survey at the Belmont County Memorial Reserve site in Bellaire Ohio. This request came from Steve Thibaudeu.

The field survey was conducted during July 21-25, 2003. The data was processed during the week of August 4 and forwarded to Steve on August 12th on CD. Steve stated that the project has been put on the back burner.

A Reference Baseline was set (B1 and B2- iron pins). These points were positioned from NGS control points B316 and L115 using GPS static observations. Additional points were set from this baseline as needed.

Two boundary monuments were found at the southwest and northeast corners of the property. The deed description was plotted out and then rotated to match the found monuments.

A map showing the location of proposed drill holes was provided to William Puckett as requested.

Survey control datums: NAD 83 OH S SPCS / NAVD88

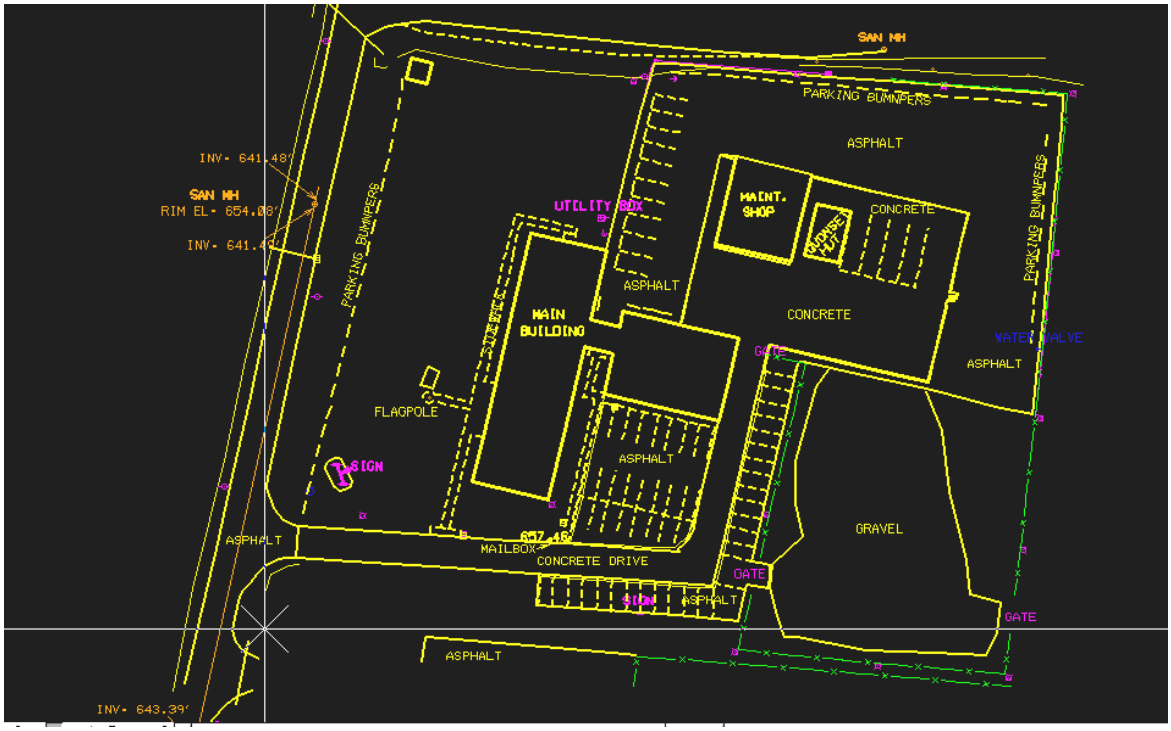
Field files are backed up on Data Disk #1462

DGN files are backed up on Map Disk # 4321

BLL, August 26, 2003

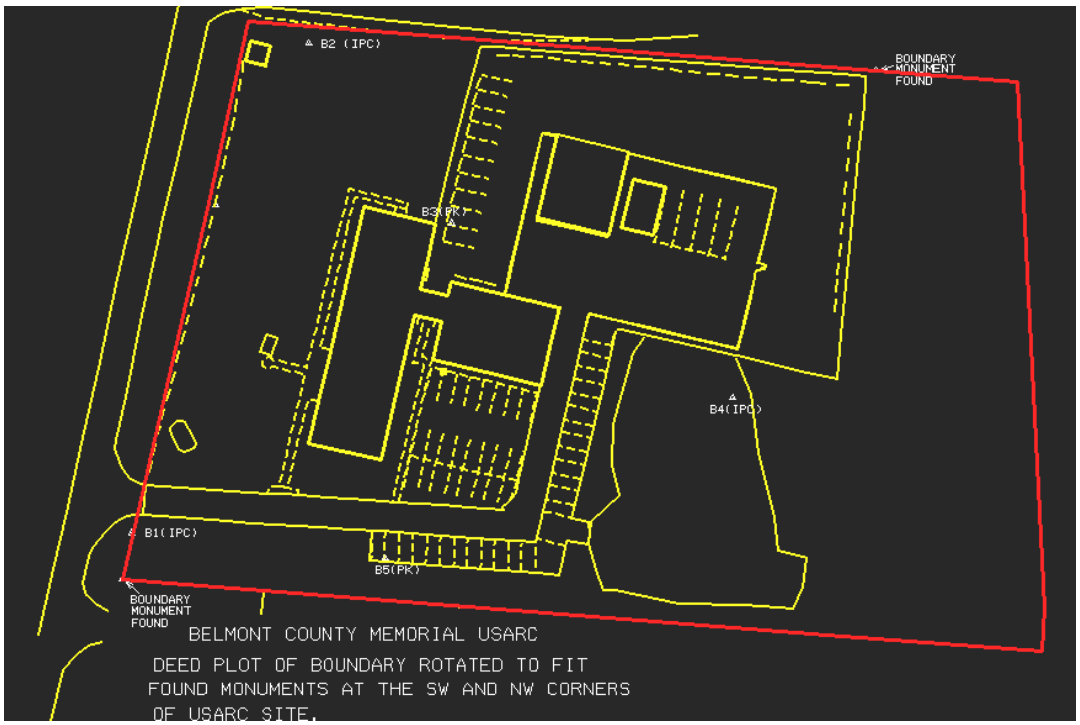
J-2. Planimetric Detail of Site

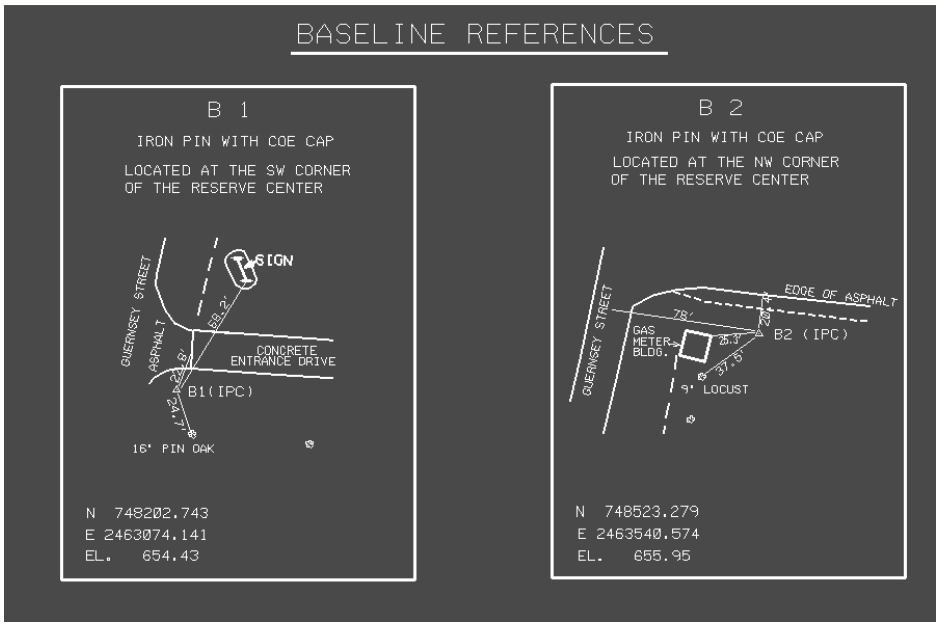
The following plate shows the general site planimetry.



J-3. Boundary Ties and Primary Control Points

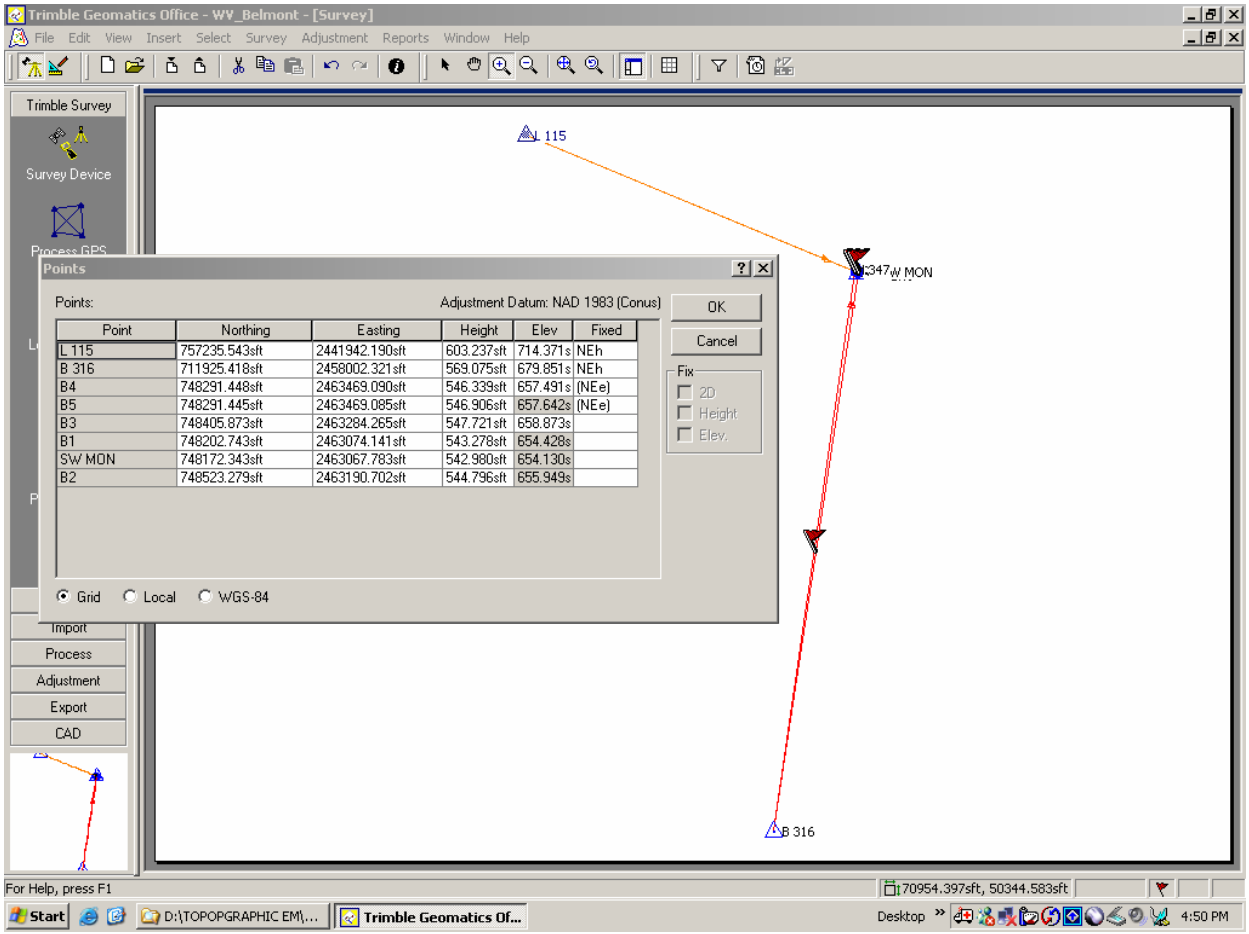
The following plates show the location and descriptions of two primary control points (B1-IPC and B2-IPC) set along the western perimeter of the site. Points B3-PK (near the Main Building) and B4-IPC (east of the Main Building) were tied in by static GPS observations to NSRS control outside the site. From these two points (B3-PK and B4-IPC) topographic mapping was performed by RTK methods--including ties to points B1 and B2. Two boundary control monuments were found and tied in, as shown below.





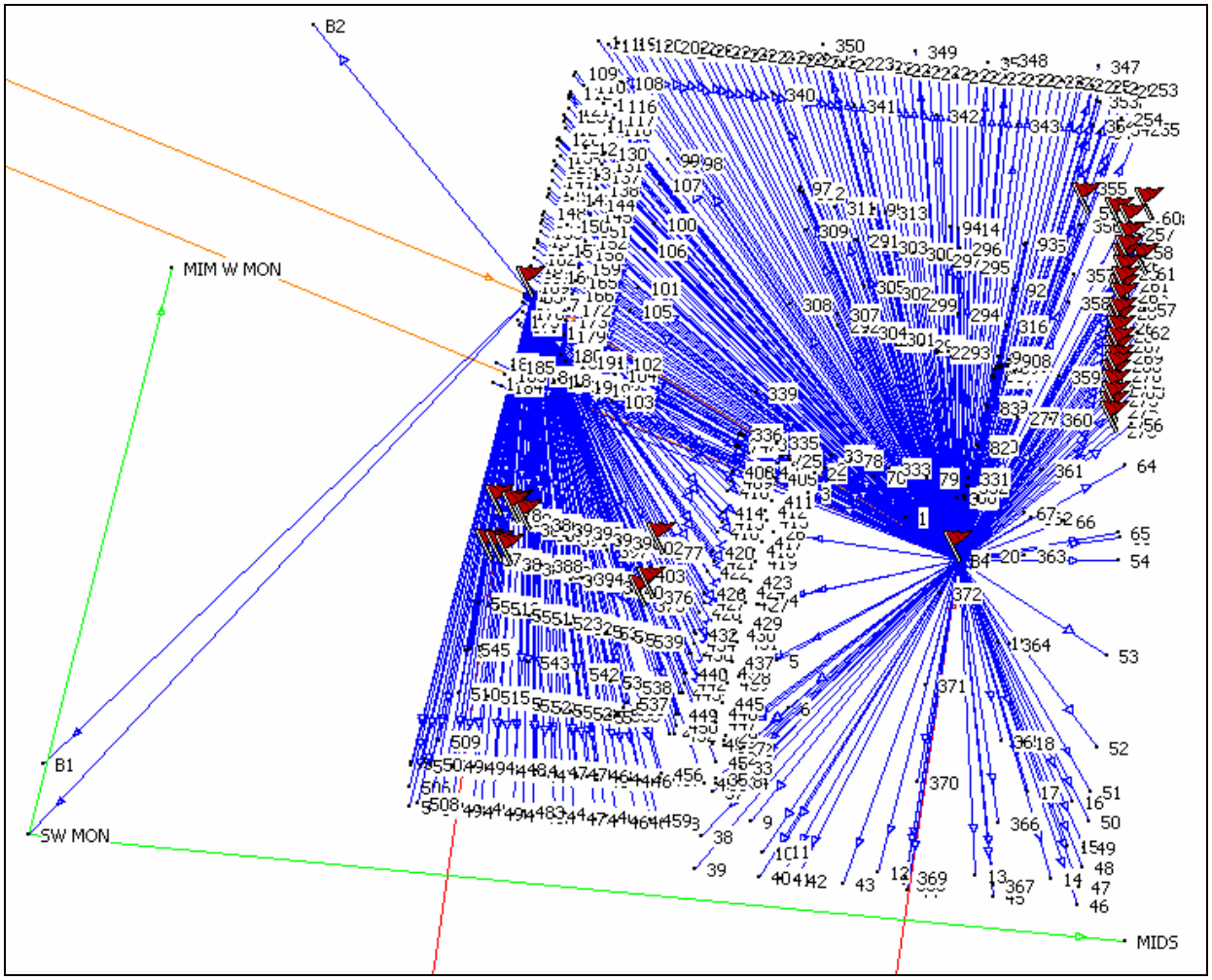
J-4. Control Ties to Local NSRS Network

The following plate shows 15-minute static GPS observations from fixed control points L-115 (23.3 K ft baseline) and B 316 (36.8 K ft baseline)--to points B3 and B4 on the site. The remaining site control monuments (B1, B2, SW MON, and B5) were tied in by RTK observations from B3. Final coordinates and elevations were determined by performing a least square adjustment of the GPS observations holding L-115 & B-316 fixed.



J-5. RTK Observations at the Site

The following plate shows RTK observations from points B3 and B4. Topographic points in the westerly portion of the site were obtained by total station.



J-6. Ground Shots and Generated Contours

The following plate from the MicroStation design file depicts the general density of the ground shots taken in the parking areas near the Maintenance Shop. The shot points were used to generate a TIN from which the automated contours were developed at 1-ft intervals. (Breaklines or blocks around the building perimeters were obviously not input since the contours are shown passing through the facilities).

J-7. Planned Boring Locations and Surface Utilities

The following plate depicts the location of core borings (AD-1, AD-2, and AD-3).